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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,655	12/30/2003	James Kenneth Aragones	RD28217-3	1654
6147 7590 05/24/2007 GENERAL ELECTRIC COMPANY GLOBAL RESEARCH PATENT DOCKET RM. BLDG. K1-4A59 NISKAYUNA, NY 12309			EXAMINER CRAIG, DWIN M	
			ART UNIT 2123	PAPER NUMBER
			MAIL DATE 05/24/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/707,655	<b>Applicant(s)</b> ARAGONES, JAMES KENNETH	
	<b>Examiner</b> Dwin M. Craig	<b>Art Unit</b> 2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-36 is/are rejected.
- 7) ☒ Claim(s) 1-8, 13-21 and 25-33 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. Claims 1-8, 10-36 have been presented for reconsideration based on Applicant's amended claim language and arguments.

#### *Response to Arguments*

2. Applicant's arguments in combination with the instant amendments to the claims have been fully considered: the Examiner's response is as follows:

2.1 Regarding Applicant canceling claim 12 that was presented between claims 24 and 25, the Examiner has no record of a duplicate claim 12 being presented between claims 24 and 25 and so does not object to the Applicant canceling a non-existent claim.

2.2 Regarding the Applicant's response to the 35 U.S.C. 101 rejections of claims 1-36, Applicant's arguments in view of the instant amendments to the claims are persuasive and the Examiner withdraws the previously applied rejections to the claims under 35 U.S.C. 101.

2.3 Regarding Applicant's response to the 35 U.S.C. 103(a) rejections of claims 1-36,

The Examiner has found the argument regarding de-trending the engine data by "smoothing" the data to be persuasive in that the currently applied prior art references fail to teach de-trending of a baseline model. Further and in regards to the claimed limitation of "smoothing" and in view of the presented arguments, the Examiner notes that when engine data is being "de-trended" that the data is going to be "smoothed" and therefore a teaching of "de-trended" engine data inherently teaches 'smoothing' engine data.

Applicant argued on page 15: "*Further there is no teaching or even a suggestion in Morrison that the batch files are used to segment data...*" the phrase "batch files" does not appear in claims 10, 22 or 34.

The Examiner is confused; Applicant is canceling claims that have never existed in prosecution and arguing limitations that do not appear in the claim language.

The Examiner has found the argument regarding de-trending the engine data to be persuasive in that a teaching of engine de-trending is required in order to meet the limitations of the claims, as such the previously applied rejections will be withdrawn.

An updated search has revealed new art.

### ***Claim Objections***

3. Claims 1-8, 13-21 and 25-33 are objected to for the following reasons:

Using newly amended claim 1 as an example the following claimed limitations are unclear, *wherein the engine baseline component applies a smoothing algorithm to the initial baseline model, wherein applying a smoothing algorithm comprises a smoothed effect and wherein the engine baseline modeling component further eliminates the smoothed effect from the initial baseline model,*

By eliminating the smoothed effect, which completely cancels the effect of performing the smoothing system/method step the claimed system/method steps appear to cancel each other and no actual modification is being done on the engine baseline model data. The current claim language is unclear as to exactly what the claimed limitations are doing clarification is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-8 and 10-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 7,039,554 to Nguyen and in view of U.S. Patent 5,703,283 to McClish.

4.1 Independent claim 1 consists of *a system for performing baseline modeling comprising:*

1. *An engine service database containing engine data, wherein the engine data includes at least time-varying engine data;*
2. *a preprocessor for processing the engine data into a predetermined format; and*

3. *an engine baseline modeling component that builds an initial engine baseline model from the preprocessed data using regression analysis, wherein the regression analysis relates engine performance variables as a function of engine operating conditions,*

4. *wherein the engine baseline component applies a smoothing algorithm to the initial baseline model, wherein applying a smoothing algorithm comprises a smoothed effect and wherein the engine baseline modeling component further eliminates the smoothed effect from the initial baseline model, to generate a de-trended engine baseline model.*

Nguyen teaches, *An engine service database containing engine data, wherein the engine data includes at least time-varying engine data; (Col. 10 lines 17-25, see also Figures 5A, B & C and 6 A, B & C and Col. 5 lines 1-16, see also Col. 10 lines 50-56) and an engine baseline modeling component that builds an initial engine baseline model from the preprocessed data, a preprocessor for processing the engine data into a predetermined format and using regression analysis (Col. 6 lines 26-48 and Figure 7 item # 104 "Spike Remover" and item #106 "Data Smoother" and regarding regression analysis see Col. 2 lines 57-56 more specifically, "smoothing the data set to diminish an effect of extraneous data points and obtain smoothed data, wherein the smoothing includes using a low-point weighted average and regression technique" and Col. 5 lines 51-67 and Col. 6 lines 1-24) wherein the regression analysis relates engine performance variables as a function of engine operating conditions (Col. 6 lines 11-24 more specifically, line 11 "...on the ambient conditions (e.g. outside temperature, indicated airspeed, and altitude, etc...))" and wherein the engine baseline modeling component applies a smoothing algorithm to the initial engine baseline model to reduce the effects of time-varying engine data*

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(Figures 5 & 6 and Col. 50 lines 50-67 and Figures 1 and Col. 8 lines 4-53 and Figure 7 item #106 “DATA SMOOTHER”).

However, *Nguyen* does not expressly disclose *generating a de-trended engine baseline model*.

*McClish* teaches de-trending engine data (Title, Abstract and Col. 4 lines 14-21).

*Nguyen* and *McClish* are analogous are because they are all from the same problem solving area of modeling the performance of engines.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use the de-trending methods of *McClish* in combination with the smoothing methods of *Nguyen* because by de-trending the data erroneous behaviors in the data can be removed which results in an improved data result, *see McClish Col. 7 lines 41-45*.

Therefore it would have been obvious to combine *McClish* with *Nguyen* to obtain the invention as specified in claims 1-8 and 10-36.

4.2 Regarding claim 2, *Nguyen* teaches a *smoothing algorithm* (Figure 7 item # 106).

4.3 Regarding claim 3 *Nguyen* teaches repeating *smoothing algorithm* (Figure 3 item 28 note the “Second Pass” and the descriptive text).

4.4 Regarding claim 4, *Nguyen* teaches, *wherein the preprocessor comprises a data acquisition component that extracts engine data from the engine services database* (Figure 7 items # 124 & 122 and Col. 10 lines 18-25).

4.5 Regarding claim 5, *Nguyen* teaches *wherein the preprocessor comprises a data-scrubbing component that cleans the engine data* (Col. 8 lines 54-55 “The data point is then filtered to remove noise from the data” filtering the data is the same as cleaning the data).

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4.6 Regarding claim 6, *Nguyen teaches wherein the preprocessor comprises a data-segmenting component that segments the engine data into a plurality of groups* (Figure 5 & 6 and the descriptive text).

4.7 Regarding claim 7, *Nguyen teaches, wherein the engine baseline-modeling component comprises a metric component that validates the de-trended engine baseline model* (Col. 10 lines 26-49).

4.8 Regarding claim 8, *Nguyen teaches, wherein the engine baseline-modeling component comprises a heuristics component that generates rules for cleaning the preprocessed data* (Col. 7 lines 44-67, pre-specifying a threshold is the same as applying a rule).

4.9 Regarding independent claim 10, the limitations for this claim are rejected for the reasons given above for independent claim 1, however, the examiner notes that the following limitations are missing from independent claim 1, specifically,

5. *A data-segmenting component that segments the engine data into a plurality of groups; and wherein the engine baseline-modeling component combines data from correlated groups.*

*Nguyen teaches, a data segmenting component that segments the engine data into a plurality of groups; and wherein the engine baseline-modeling component combines data from correlated groups* (Figure 5 & 6 and the descriptive text).

4.10 Regarding claim 11, *Nguyen teaches, wherein the combination of data from correlated groups is performed by utilizing a weighted average technique to fit all engine baseline*

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*parameter trends to one primary trend* (Col. 3 lines 21-24 “smoothing includes using a two-pass weighted average...”).

4.11 Regarding independent claim 12 the limitations for this claim are rejected for the reasons given above for independent claim 1, however, the examiner notes that the following limitations are missing from independent claim 1, specifically,

6. *A data-segmenting component that segments the engine data into a plurality of groups; and wherein the engine baseline-modeling component identifies segments relating to related engines.*

*Nguyen teaches, a data-segmenting component that segments the engine data into a plurality of groups; wherein the engine baseline-modeling component identifies segments relating to related engines* (Figures 5 & 6 and the related descriptive text).

4.12 Regarding claim 13, the rejection of claim 1 wholly covers the claimed limitations in claim 13.

4.13 Regarding claim 14, *Nguyen teaches, wherein the smoothing algorithm includes a moving average calculation* (Col. 3 lines 21-24 “smoothing includes using a two-pass weighted average...”).

4.14 Regarding claim 15, *Nguyen teaches, repeating a smoothing algorithm* (Figure 3 item 28 note the “Second Pass” and the descriptive text).

4.15 Regarding claim 16, *Nguyen teaches, further comprising extracting the engine data from the engine services database* (Col. 10 lines 17-25).

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4.16 Regarding claim 17, *Nguyen teaches, wherein the processing step comprises further comprises cleaning the engine data* (Col. 8 lines 54-55 “The data point is then filtered to remove noise from the data” filtering the data is the same as cleaning the data).

4.18 Regarding claim 19, *Nguyen teaches, further comprising validating the de-trended engine baseline model* (Figures 6a, 6b & 6c the data is being *validated* see also the descriptive text).

4.19 Regarding claim 20, *Nguyen teaches, further comprising generating rules for cleaning the preprocessed data* (Col. 8 lines 54-55 “The data point is then filtered to remove noise from the data” filtering the data is the same as cleaning the data).

4.20 Regarding claim 21, *Nguyen teaches, further comprising evaluating the performance of the de-trended engine baseline model* (Figures 6a, 6b & 6c the data is being *validated* see also the descriptive text).

4.21 Regarding independent claim 22, the limitations for this claim are rejected for the reasons given above for independent claim 1, however, the examiner notes that the following limitations are missing from independent claim 1, specifically,

6. *Segmenting the engine data into a plurality of groups; and identifying correlated groups of engine data based on a an initial engine baseline model.*

*Nguyen teaches a data-segmenting component that segments the engine data into a plurality of groups* (Figures 5a, 5b, 5c, 6a, 6b & 6c and the descriptive text).

4.22 Regarding claim 23, *Nguyen teaches, wherein the step of combining of data from correlated groups comprises utilizing a weighted average technique to fit all engine baseline*

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*parameter trends to one primary trend* (Col. 3 lines 21-24 “smoothing includes using a two-pass weighted average...”).

4.23 Regarding claim 24, the rejection presented for claim 1, wholly meets the claimed limitations as set forth; see the rejection for claim 1.

4.24 Regarding claim 25, the rejection presented for claim 1, wholly meets the claimed limitations as set forth; see the rejection for claim 1.

4.25 Regarding claim 26, the rejection presented for claim 2, wholly meets the claimed limitations as set forth; see the rejection for claim 2.

4.26 Regarding claim 27, the rejection presented for claim 3, wholly meets the claimed limitations as set forth; see the rejection for claim 3.

4.27 Regarding claim 28, the rejection presented for claim 4, wholly meets the claimed limitations as set forth; see the rejection for claim 4.

4.28 Regarding claim 29, the rejection presented for claim 5, wholly meets the claimed limitations as set forth; see the rejection for claim 5.

4.29 Regarding claim 30, the rejection presented for claim 6, wholly meets the claimed limitations as set forth; see the rejection for claim 6.

4.30 Regarding claim 31, the rejection presented for claim 7, wholly meets the claimed limitations as set forth; see the rejection for claim 7.

4.31 Regarding claim 32, the rejection presented for claim 8, wholly meets the claimed limitations as set forth; see the rejection for claim 8.

4.32 Regarding claim 33, *Nguyen teaches discloses further comprising a model diagnostics component that evaluates the performance of the de-trended engine baseline model* (Figure 6a,

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6b & 6c and the descriptive text and further see Figure 7 items 124, 122 and 126 and more specifically item 118 the description therein).

4.33 Regarding claim 34, the rejection presented for claim 22, wholly meets the claimed limitations as set forth; see the rejection for claim 22.

4.34 Regarding claim 35, the rejection presented for claim 23, wholly meets the claimed limitations as set forth; see the rejection for claim 23.

4.35 Regarding claim 36, the rejection presented for claim 22, wholly meets the claimed limitations as set forth; see the rejection for claim 22.

### ***Conclusion***

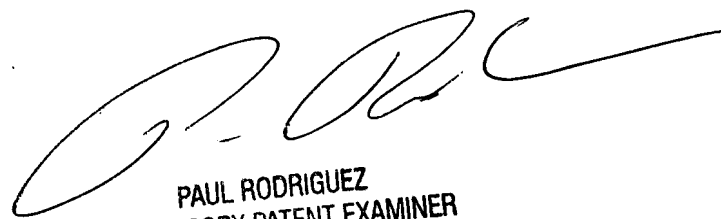
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dwain M. Craig whose telephone number is (571) 272-3710. The examiner can normally be reached on 10:00 - 6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul L. Rodriguez can be reached on (571) 272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dwin McTaggart Craig



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